

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Michel BRUN, et al.

Conf. No.: 4054

Application No.: 10/574,542

Art Unit: 3742

Filed: May 3, 2007

Examiner: S. T. FUQUA

Title: HEATING ASSEMBLY COMPRISING A  
PTC ELEMENT, IN PARTICULAR FOR A  
MOTOR VEHICLECommissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**REPLY AND/OR AMENDMENT UNDER 37 C.F.R. §§ 1.111**

Sir:

In response to the Office Action of March 30, 2009, please amend the above-identified application as follows:

**Amendments to the Specification** begin on page 2 of this paper.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 4 of this paper.

**Remarks/Arguments** begin on page 9 of this paper.

**Amendments to the Specification**

Please add the following new paragraph on page 1 before line 4:

**FIELD OF THE INVENTION**

Please amend the paragraph beginning at page 1, line 4 as follows:

The invention relates to a heating assembly with a PTC (positive thermal coefficient) element, in particular for a motor vehicle, ~~according to the precharacterizing clause of claim 1.~~

Please add the following new paragraph on page 1 after line 6:

**BACKGROUND OF THE INVENTION**

Please add the following new paragraph on page 1 after line 26:

**SUMMARY OF THE INVENTION**

Please cancel the paragraph beginning on page 1, line 31.

Please add the following new paragraph on page 2 after line 33:

**BRIEF DESCRIPTION OF THE DRAWINGS**

Please add the following new paragraph on page 3 after line 9:

**DETAILED DESCRIPTION**

Please amend the paragraph beginning on page 3, line 25 as follows:

FIG. 3 shows a heating section 8 according to a second exemplary embodiment, a plate 13, which comprises ~~consists of~~ an insulating material, in the present case polyamide, in each case being provided on the outer side of the heating section 8. In this case, the plates 13 may be securely attached to the corrugated rib 6 by means of adhesion (same adhesive as is used for bonding the PTC element 2 and the contact plates 3 and 4 and/or for bonding the contact plate 3 or 4 and the corrugated rib 6) or by means of a soldered bond.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently amended) A heating assembly ~~with~~ comprising:  
at least one PTC element, ~~in particular for a motor vehicle,~~ the PTC element being arranged between two contact plates that are adapted to provide an ~~which serve for making electrical connection; [[,]] and the heating assembly having~~  
a frame and at least one corrugated rib inside the frame,  
wherein ~~characterized in that~~ at least one of the two contact plates extends through the frame and has an offset part outside the frame, the offset part ~~of the projecting part of the contact plate running parallel to a~~ the remaining part of the contact plate.
2. (Previously presented) The heating assembly as claimed in claim 1, wherein the frame is formed in an insulating manner.
3. (Currently amended) ~~The heating assembly as claimed in claim 1,~~ A heating assembly comprising:  
at least one PTC element arranged between two contact plates which serve for making electrical connection; and  
a frame.

wherein at least one of the two contact plates has an offset part outside the frame, the offset part of the projecting part of the contact plate running parallel to a remaining part of the contact plate, and

wherein the frame has spacers, which are arranged between mutually assigned contact plates.

4. (Previously presented) The heating assembly as claimed in claim 3, wherein two spacers are provided on mutually opposite sides of the frame for each pair of mutually assigned contact plates.

5. (Currently amended) The heating assembly as claimed in claim 11 ~~claim 4~~, wherein between neighboring heating sections there is formed a distance which is respectively formed by a PTC element, a pair of mutually assigned contact plates and corrugated ribs.

6. (Previously presented) The heating assembly as claimed in claim 1, wherein the contact plates and the PTC element are bonded to one another by means of an adhesive or a solder.

7. (Previously presented) The heating assembly as claimed in claim 1, wherein the contact plates and the corrugated ribs are bonded to one another by means of an adhesive or a solder.

8. (Previously presented) The heating assembly as claimed in claim 1, wherein a further plate is attached to the corrugated rib on the side opposite from the contact side of the contact plate and the corrugated rib.

9. (Previously presented) The heating assembly as claimed in claim 8, wherein the plate comprises an insulating material.

10. (Previously presented) The heating assembly as claimed in claim 8, wherein the plate comprises aluminum.

11. (Previously presented) The heating assembly as claimed in claim 1, wherein the heating assembly comprises a number of independent heating sections.

12. (New) The heating assembly as claimed in claim 1, where one of the at least two contact plates does not include an offset portion, said one of the at least two contact plates having a planar surface in contact with the PTC element, said planar surface lying entirely in one plane.

13. (New) A heating assembly comprising:

a frame;

a first electrically conducting contact plate having a length, a width and a thickness supported in the frame;

a second electrically conductive contact plate having a length, a width and a

thickness supported in the frame; and

at least one positive thermal coefficient (PTC) element arranged between the first and second contact plates,

wherein the first contact plate includes a main body and an extension of the main body in the length direction projecting outside the frame, the extension of the main body including an offset part substantially parallel to the main body.

14. (New) The heating assembly as claimed in claim 13, wherein the extension of the main body extends through an opening in the frame.

15. (New) The heating assembly as claimed in claim 13, wherein the second contact plate has a first surface contacting the PTC element, said first surface lying entirely in a single plane.

16. (New) The heating assembly as claimed in claim 13, wherein the PTC element contacts a first surface of the first contact plate, the first surface extending in the length and width directions.

17. (New) The heating assembly as claimed in claim 13, further including at least one corrugated rib element inside the frame.

18. (New) The heating assembly as claimed in claim 13, including third and fourth electrically conducting contact plates inside the frame and contacting another

PTC element.

19. (New) The heating assembly as claimed in claim 13, wherein the frame includes at least one spacer between the first contact plate and the second contact plate.

20. (New) The heating assembly as claimed in claim 19, wherein the at least one spacer comprises two spacers provided on opposite sides of the frame.



### **REMARKS/ARGUMENTS**

Favorable reconsideration and allowance of the present application is respectfully requested. Claims 1-20 are pending in the above application of which claims 1 and 13 are independent. Claims 12-20 have been added by the above amendment.

The Office Action dated March 30, 2009, has been received and carefully reviewed. In that Office Action, an objection to the specification was raised, and claims 1-11 were rejected under 35 U.S.C. 102(b) as being anticipated by Umebayahi. In addition, claims 3 and 4 were objected to as being dependent upon a rejected base claim but were indicated to be allowable if amended to include the limitations of their base claims. Each of these issues is addressed below, and reconsideration and allowance of claims 1-20 is respectfully requested in view of the following remarks.

### **SPECIFICATION**

The specification was objected to for lacking section headings. By the above amendment, section headings have been added to the specification. In addition, one instance of "consisting of" in the specification has been changed to "comprising," consistent with the language used in the German priority document. References to the claims have also been removed from the summary of the invention. These amendments do not add any new subject matter.

### **ALLOWABLE CLAIMS**

Applicant notes with appreciation, the Examiner's indication that claims 3 and 4 would be allowable. By the above amendment, claim 3 has been rewritten in

independent form to place it in condition for allowance. Applicant notes that claims 1 and 3 have been modified into proper form for U.S. patent practice. Furthermore, the phrase "in particular for a motor vehicle" and "characterized in that" were removed from claim 3 when it was rewritten in independent form to improve the form of the claim, and the "offset" has been described as an "offset part" for consistency, but these changes should not affect the allowability of claim 3.

REJECTION UNDER 35 U.S.C. 102(b)

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Umehayahi. Claim 1 as amended recites, inter alia, a heating assembly with at least one PTC element that is arranged between two contact plates, and that includes a frame and at least one corrugated rib inside the frame. At least one of the two contact plates extends through the frame and has an offset part outside the frame, and the offset part runs parallel to the main body of the contact plate. The Office Action interprets element 51d of Umehayahi as corresponding to the "frame" of claim 1. However, as amended, claim 1 recites at least one corrugated rib inside the frame. Umehayahi does not show any corrugated ribs inside "frame" 51d, and claim 1 as amended is submitted to be allowable over Umehayahi for at least this reason.

Claims 2 and 4-12 depend from claim 1 and are submitted to be allowable for at least the same reasons as claim 1. Claim 12 further recites that one of the at least two contact plates does not include an offset portion and does have a planar surface in contact with the PTC element. That planar surface lies entirely in one plane. Umehayahi shows connectors 51e and 51f that both have offset portions. The surfaces

of connectors 51b and 51c do not lie entirely in one plane. Claim 12 further distinguishes over Umebayahi for at least this reason.

Accordingly, withdrawal of the rejection is respectfully requested.

#### NEW CLAIMS

New claim 13 is also submitted to be allowable over the art of record. Claim 13 recites a heating assembly that includes a frame, a first electrically conducting contact plate supported in the frame, a second electrically conductive contact plate supported in the frame, and at least one positive thermal coefficient (PTC) element arranged between the first and second contact plates. The first contact plate includes a main body and an extension in the length direction projecting outside the frame, and that extension includes an offset part parallel to the main body. Umebayahi does not include an extension in the length direction of a contact plate as recited in claim 13, and claim 13 is submitted to be allowable over Umebayahi for at least this reason.

Claims 14-20 depend from claim 13 and are submitted to be allowable for at least the same reasons as claim 13. Claim 15 recites that the second contact plate has a first surface contacting the PTC element and that the first surface lies entirely in a single plane. Neither contact plate of Umebayahi lies entirely in a single plane, and claim 15 is submitted to further distinguish over the art of record for this reason.

Claim 17 further recites that the heating assembly includes at least one corrugated rib element inside the frame. Umebayahi does not show or suggest a corrugated rib element in "frame" 51d, and claim 17 is submitted to further distinguish over Umebayahi for this reason.

Claim 18 further recites third and fourth electrically conducting contact plates inside the frame and contacting another PTC element. Umebayahi does not show third and fourth contact plates inside the frame contacting another PTC element, and claim 18 is submitted to further distinguish over the art of record for this reason.

Claims 19 and 20 include limitations related to the limitations of claims 3 and 4 and are submitted to further distinguish over the art for similar reasons.

### **CONCLUSION**

Each issue raised in the Office Action dated March 30, 2009, has been addressed, and it is believed that claims 1-20 are in condition for allowance. Wherefore, reconsideration and allowance of these claims is earnestly solicited. If the examiner believes that any additional changes would place the application in better condition for allowance, the examiner is invited to contact the undersigned attorney at the telephone number listed below.

*Deposit Account Authorization*

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 50-3828 and please credit any excess fees to such deposit account.

Respectfully submitted,



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